

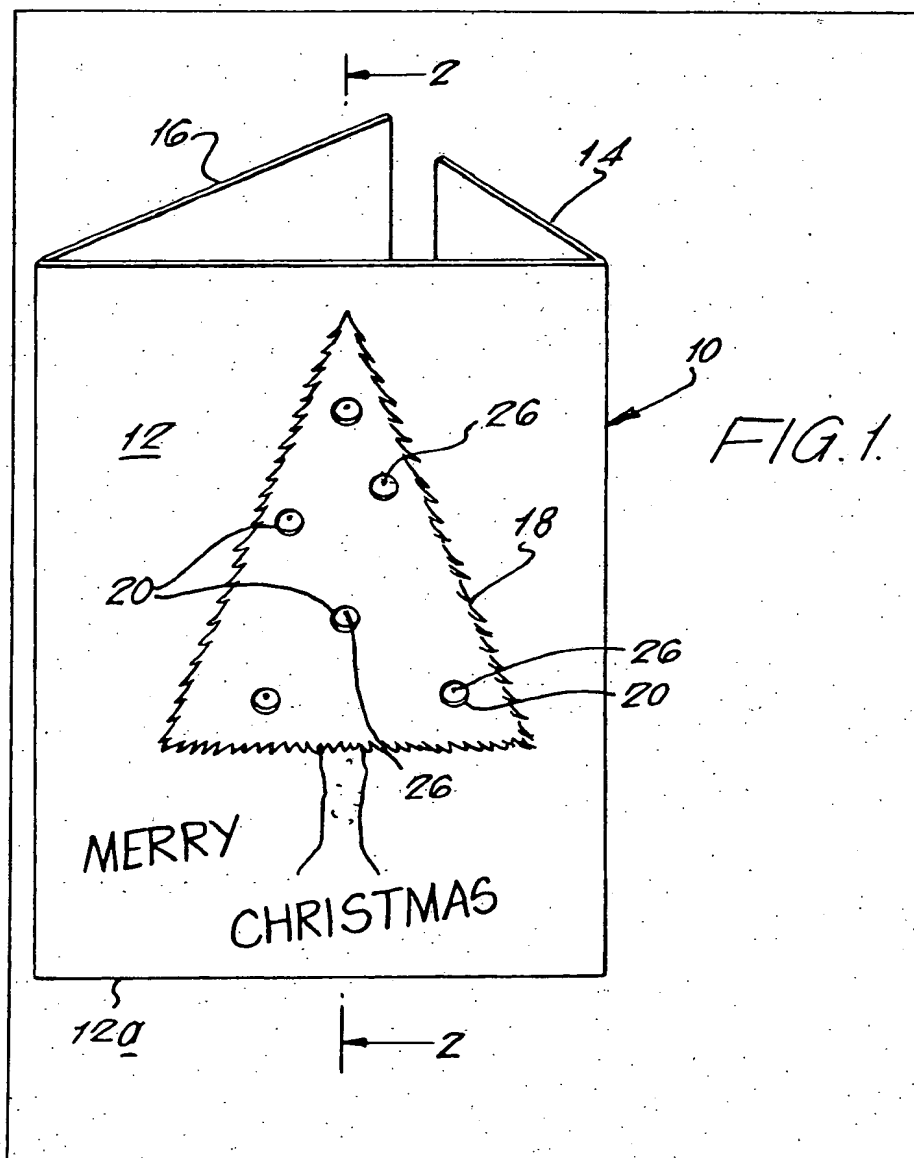
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(54) Illuminated stationery items

(57) A greetings card, calendar or the like is provided having a paper or card face sheet on which is printed some decorative design 18 and positioned

immediately behind the face sheet is a printed circuit carrying a plurality of lighting elements e.g. LEDs 26 which are in register with openings 20 through the face sheet so that, when illuminated, the lighting elements are visible through the face sheet, the openings being in turn in register with the design printed on the face sheet, the printed circuit additionally having battery terminals to which a battery can be attached to energise the lighting elements.



The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

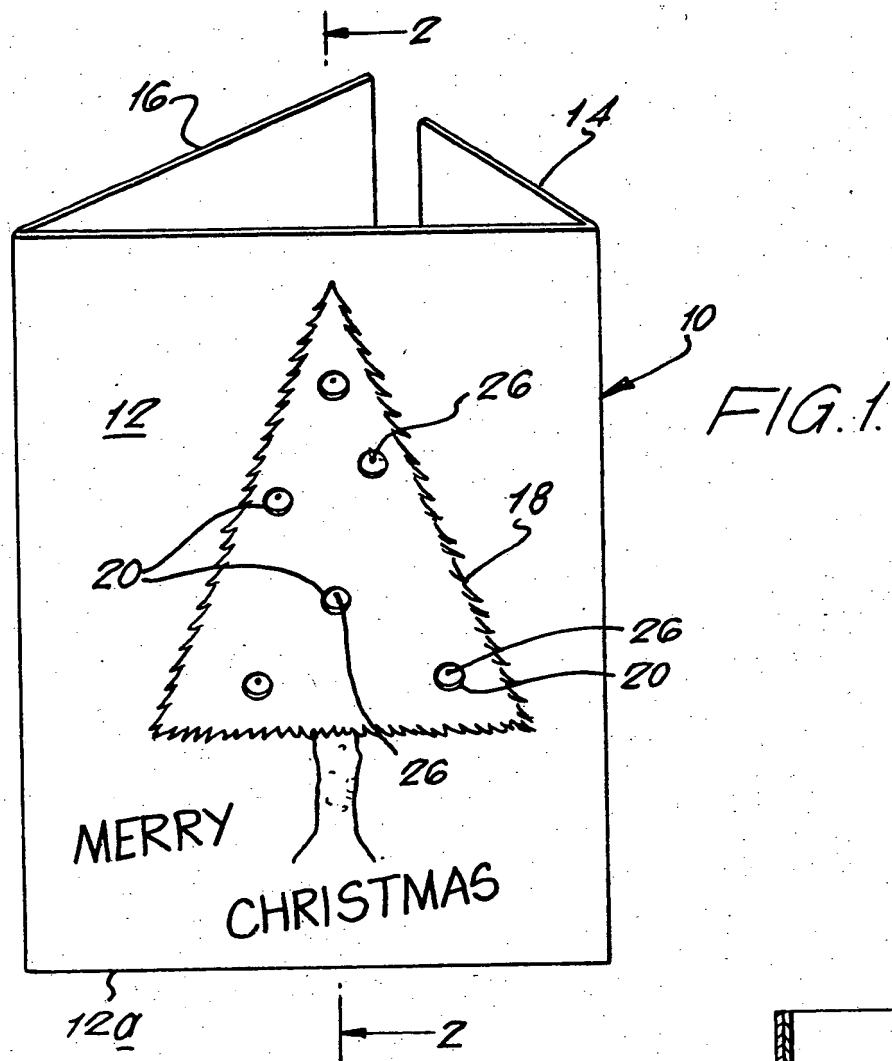


FIG. 2.

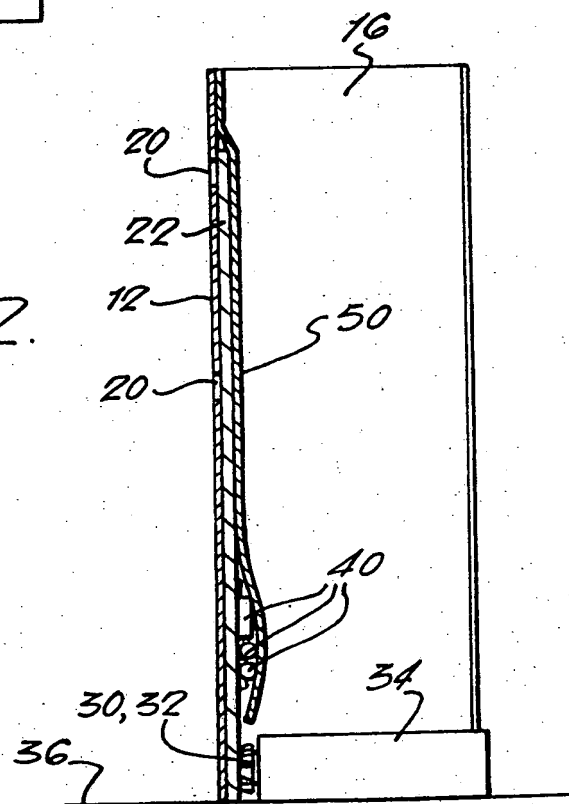
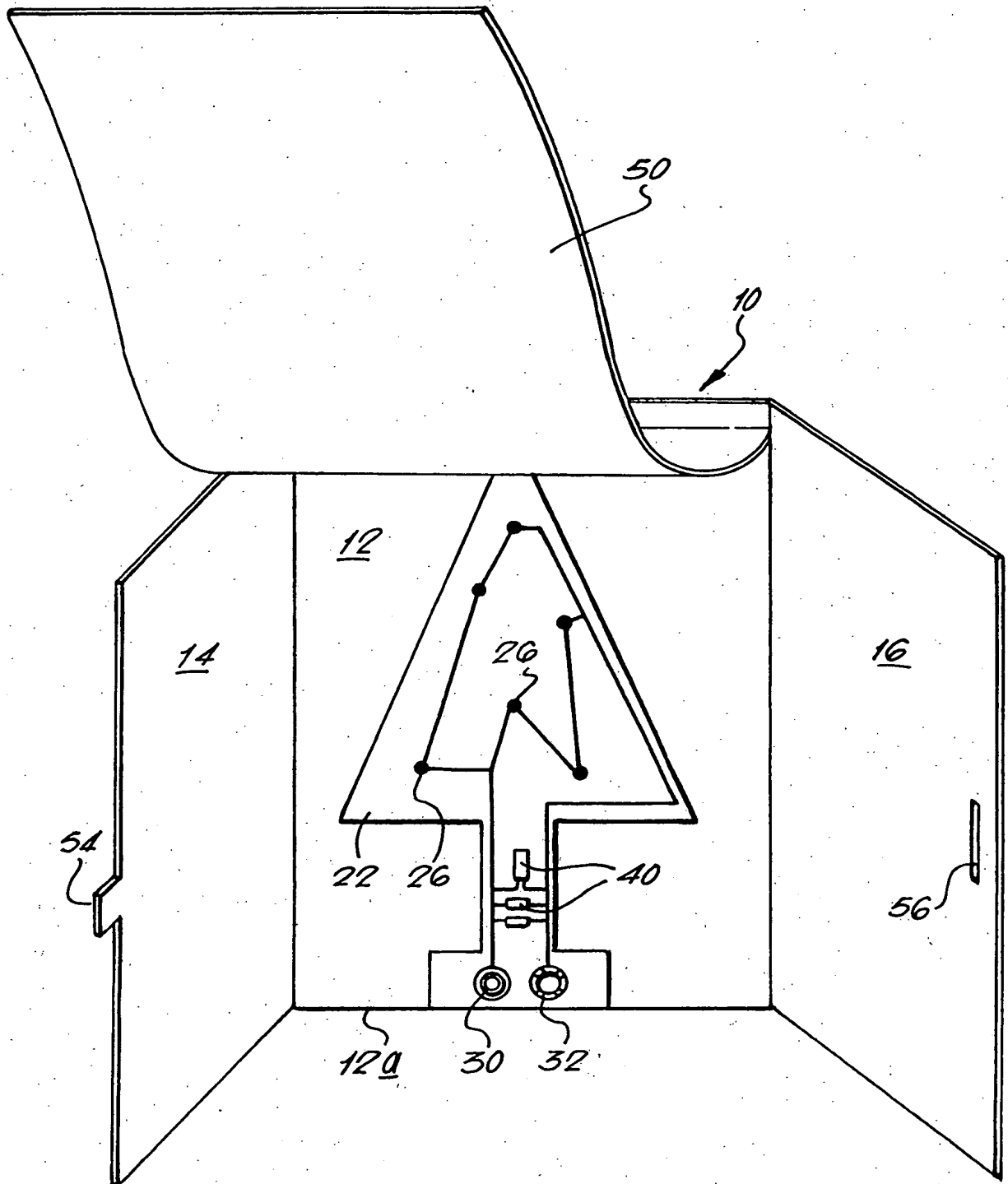


FIG. 3.



SPECIFICATION

Improvements in novelty items

- 5 This invention relates to novelty items of stationery such as greetings cards and calendars.

It is an object of the invention to enhance the appearance and attractiveness of such items and to provide them with an unusual appearance and function.

- 10 According to the invention there is provided a greetings card, calendar or the like having a paper or card face sheet on which is printed some decorative design and positioned immediately behind the face sheet is a printed circuit carrying a plurality of lighting elements which are in register with openings through the face sheet so that, when illuminated, the lighting elements are visible through the face sheet, the openings being in turn in register with the design printed on the face sheet, the printed circuit additionally having battery terminals to which a battery can be attached to energise the lighting elements.

- Preferably, the printed circuit is in the form of a board and carries electronic components making up an oscillating circuit which controls at least some of the lighting elements so that they flash repeatedly. To enable the lighting elements to be positioned close behind the holes in the face sheet, however, it is preferable that these electronic components be attached to the opposite surface of the printed circuit from the lighting elements.

- Such an item can provide a striking and unusual effect such as the simulation of flashing Christmas tree lights on a Christmas tree if the card, is, say, a Christmas card.

- Preferably, the lighting elements are light-emitting diodes (LED) since these have a relatively low energy consumption and are very small in size. Other lighting elements such as LCD, filament bulbs optical fibres leading from one source of illumination or a polarised lighting device can be used however.

- Normally, it would be intended that the lighting elements will be energised from a small battery although a suitable mains adaptor could be provided. To give stability to the card or calendar so that it will stand securely on a surface, the printed circuit preferably extends down close to the bottom of the card and has a pair of battery-connecting terminals to which the battery can be joined for energisation of the lights. Preferably, the terminals are positioned so that the battery, when connected to the terminals, rests on the surface together with the card and assists in holding the card steady and upright.

- 55 A greetings card according to the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a front perspective view of the card;

- 60 *Figure 2* is a section taken on the line 2-2 of *Figure 1*; and

Figure 3 is a rear view of the card with parts of the card opened up.

- The greetings card 10 shown in the drawings has a front face 12 and two side flaps 14 and 16 hinged to the front face. These portions have all been made

from a single sheet of paper or card with the flags delineated by fold lines.

- On the front of the front face has been printed an ornamental design 18 and in the example shown in the drawings the card is a Christmas card. A Christmas tree design 18 is therefore shown and at a number of positions within the printed tree design are small circular holes or cut-outs 20.

- Positioned immediately behind the rear of the front face 12 is a printed circuit board 22. This is attached to the face 12 and has been provided with a number of LED's 26 each of which is positioned in register with one of the holes or cut-outs 20. The LEDs have been covered with small blobs (not shown) of coloured epoxy resin so that when they are illuminated, they give the appearance of coloured lights on the Christmas tree design 18.

- The circuit board 22 extends down close to the lower edge 12a of the front face and a pair of contacts 30 and 32 are provided for joining the circuit board to a battery 34 (see *Figure 2*). As best shown in *Figure 2*, when the battery 34 is connected to these contacts, it is of a type such that it extends substantially flush with the lower edge 12a and will therefore rest securely on a surface 36 on which the card stands. Its weight and its support on the surface 36 give additional stability to the card. It is not normally visible, however, since it is mashed or hidden behind the two flaps 14 and 16.

- The battery 34 is preferably of the transistor radio type so it has a relatively large capacity and can energise the LEDs for quite long periods of time.

- The circuit board can additionally carry electronic components such as the components 40 to provide an oscillating circuit, e.g. of the multivibrator or flip-flop type. In this way, the energisation of the LEDs can be controlled so that they repeatedly flash. These components 40 are preferably attached to the circuit board 22 on the opposite side from the LED's so that the board can be attached substantially flush to the rear face of the front face 12. To save space, however, relatively large components 40 are preferably positioned so that they are folded flat against the surface of the board.

- The circuit board 22 and its components 40 are preferably hidden from view by means of a cover sheet 50 joined to the rear of the face sheet 12 to sandwich the circuit board.

- The flaps 14 and 16 may carry appropriate greetings messages and in addition one can be provided with a small tag 54 which fits into a slot 56 in the other flap to hold the card in an assembled substantially triangular format when seen from above.

- As will be appreciated, the card is simple yet provides a unique and interesting effect.

CLAIMS (Filed on 9 Dec 83)

1. A stationery item such as a greetings card, calendar or the like having a paper or card face sheet on which is printed some decorative design and positioned immediately behind the face sheet is a printed circuit carrying a plurality of lighting elements which are in register with openings through the face sheet so that, when illuminated, the lighting

elements are visible through the face sheet, the openings being in turn in register with the design printed on the face sheet, the printed circuit additionally having battery terminals to which a battery can be attached to energise the lighting elements.

5 2. A stationery item as claimed in Claim 1 further comprising a printed circuit board comprising the printed circuit, the board being adhered in face to face relationship to the rear of the face sheet.

10 3. A stationery item as claimed in Claim 1 or Claim 2 further comprising oscillating circuitry components carried by the printed circuit whereby at least some of the lighting elements flash repeatedly when the circuit is energised.

15 4. A stationery item as claimed in Claim 3 in which the components are attached to the opposite surface of the printed circuit to that in contact with the rear face of the face sheet.

5. A stationery item as claimed in any preceding claim in which the lighting elements are light emitting diodes.

25 6. A stationery item as claimed in any preceding claim further comprising a lower edge to the face sheet on which the item rests, the battery terminals being positioned adjacent the lower edge, whereby when a battery is attached to the terminals, the battery can also rest on the same surface as the lower edge to assist in supporting the item with the face sheet upright.

30 7. A greetings card comprising a face sheet of thin card having a lower end by means of which the card rests on a supporting surface, at least one side flap integrally formed with the face sheet and hingedly joined to one of the upright side edges of the card, a decorative design printed on the front face of the card, a printed circuit board having one face adhered in face to face contact with the rear of the card, the board carrying a printed circuit, and a plurality of light emitting diodes bonded to the
40 printed circuit board to be actuated by the circuit, a plurality of openings through the face sheet, each of the openings being in register with one of the light emitting diodes so that when actuated, the diodes are visible through the openings and form part of the
45 decorative design, battery terminals for the circuit fixed to the circuit board adjacent the lower end of the face sheet, the terminals being on the rear face of the circuit board, a battery attached to the terminals and resting substantially flush on a supporting
50 surface with the lower edge to assist in supporting the card upright, and circuit components for actuating the light emitting diodes adhered to the rear face of the circuit board.

8. A greetings card as claimed in Claim 7 in
55 which the circuit components comprise an oscillating circuit whereby at least some of the diodes flash repeatedly.

9. A stationery item such as a greetings card, calendar or the like substantially as herein described
60 with reference to the accompanying drawings.

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